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**From:** Fairbanks, Brianna [Fairbanks.Brianna@epa.gov]  
**Sent:** 8/6/2018 4:48:02 PM  
**To:** LEE, LILY [LEE.LILY@EPA.GOV]  
**CC:** Chesnutt, John [Chesnutt.John@epa.gov]  
**Subject:** RE: Legal advice - add CSM language from our 12/2017 comments?

I think it is appropriate to discuss this issue, particularly where the work plan seems to rely on an alternative CSM that the Navy has never actually presented in written form. If they want to alter or update the prior CSM, they should do that formally; not just rely on a broad and vague collection of assumptions.

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**From:** LEE, LILY  
**Sent:** Monday, August 06, 2018 9:07 AM  
**To:** Fairbanks, Brianna <Fairbanks.Brianna@epa.gov>  
**Cc:** Chesnutt, John <Chesnutt.John@epa.gov>  
**Subject:** Legal advice - add CSM language from our 12/2017 comments?

Dear Brianna,

You had suggested a while ago when we discussed Q&A's on Parcel G Path forward that we make publicly clear the differences between the Navy vs EPA CSM. Below is language that I put into the 12/2017 comments on Parcels B&G data eval. However, I did not put these into the 3/2018 comments on the 2/2018 draft Navy workplan. So in a way it seems like a process foul to bring it up in this context. However, the June 2018 draft clearly shows that the Navy still has the same fundamental philosophical difference in CSM and the purpose of the rework. So can I still pull this out as illustration of why they needed to take seriously EPA Mar 2018 comments, which are based on the CSM from original RACR's? And bring it up in this context that way?

NEW Draft language for EPA comments on June 2018 draft Parcel G workplan:

1. **Section 2, Conceptual Site Model:** The Parcel G Work Plan did not address all of the previous EPA comments provided on the Draft Work Plan, Radiological Survey and Sampling, dated February 2018. The revised draft does not reflect the CSM that is cited in every draft RACR the Navy has produced, which states that contamination could have come from any leaks in storm drain/sewer lines, which could have been a result of many factors that could have occurred at any locations along the lines. The Navy and the EPA, DTSC, and CDPH have a fundamental philosophical difference of approach. The Navy presumes the site is clean and that this retesting is for the purpose of confirming that assumption through spot checking. The EPA, DTSC, and CDPH found that the original testing is completely unreliable. Therefore, we are relying on the original CSM that states that "INSERT QUOTE." Therefore, until receiving any evidence to the contrary, the underlying assumption should be that new comprehensive testing, i.e., starting from scratch, is necessary. The regulators are open to evidence for an alternative CSM, i.e. if no contamination above ROD RG's is found after excavating 33% of TU's selected as the most likely to have contamination. Only with solid evidence of a change in CSM would regulators be open to any alternative to excavation of 100% of TU's. The Parcel G Work Plan was not updated to address requested revisions to the Conceptual Site Model (CSM) (See General Comment # 21 in EPA Dec 2017 comments on Parcels B & G data

evaluation). Please ensure future versions of the Parcel G Work Plan address the CSM updates requested by EPA, and/or that the updated Master SAP address EPA's comments on the CSM.

From EPA comments 12/29 on Parcels B&G Workplan:

21. Section 2.1 of the Report presents a brief description of the conceptual site model (CSM). However, it is not complete. This should be revised to include more detail. The final Radiological Removal Action Completion Reports (RACRs) for Parcels B and G, Section 2.2 Conceptual Site Model, both cite the *Navy Memorandum for the Record: Conceptual Site Model for the Removal of the Sanitary and Storm Sewers at Hunters Point Shipyard*, December 17, 2008. Below are excerpts from that memo:

Section 2, Background, p.1-2: "Contamination . . . could have come from rework and repair of radioluminescent devices (Ra-226 and Sr-90), NRDL [Naval Radiation Defense Laboratory] experimentation and development of radiation survey instrumentation (Ra-226, Cs-137, and Sr-90), or decontamination of ships that participated in atomic weapons testing. . . . radiological operations at HPS started in 1941 and concluded in 1974 with the closure of the shipyard. During this time, controls of radioactive materials, particularly involving radioluminescent devices, were much more relaxed than today's standards and any radiological operation could have potentially impacted the sewer system. . . . Slip fittings were used at pipe joints of the sewer system, therefore the lines were not sealed and some leakage from the pipe was expected when the system was built. Additionally, excavated manholes have been found to be porous. The potential for materials to migrate from piping and manholes into the surrounding soils is significant."

Section 3b., Conceptual Site Model, p. 2: "Historically, the systems were cleaned, repaired, and replaced as necessary. In addition to potential normal seepage, all three of these operations could have released contaminations [sic] into soils surrounding the systems. In fact, cleaning was often accomplished by power washing that could have forced the contamination from the system and in some cases leave the piping free of contamination but the surrounding soils contaminated. . . . Power washing of old sewer systems easily cracks the pipes and allows for releases of pipe sediment into surrounding soils."

Section 3c. Conceptual Site Model, p. 3: "To date, the removal action has demonstrated the accuracy of the conceptual site model."

Section 3d. Conceptual Site Model, p. 4, shows that as of December 9, 2008, the Navy found 6.9% of contaminated soil in Parcel B (including Parcel D-2) trenches and 12.2% of Parcel G. This represented 93.8% of the Parcel B trench units and 58.5% of the Parcel G trench units.

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Section 4a Ongoing Removal Operations, p. 5: "93.8 percent of the sewer survey units in Parcel B . . . demonstrates the validity of the CSM [Conceptual Site Model]. Most contamination has been found in the soils surrounding the pipes, primarily below five feet. This is consistent with the pipe locations and the fact that repairs to the system or power washing would have resulted in the spread of contamination well beneath and beyond the piping system."

EPA has also discussed site conditions with contractors that worked at Hunters Point and conducted oversight of removal action, and they provided the following information:

a. During three attempts by the Navy while the shipyard was still in use to separate the storm drains and sanitary sewer lines, soil from piping would have been excavated and piled up beside the trenches and then returned to trenches. As a result, it is not possible to predict where contamination would be in the vicinity of the storm drains

and sanitary sewers.

b. It is also known that the sanitary sewers on Parcels G, D-1, and D-2 (formerly all part of Parcel D), and E were in very poor condition based on the large groundwater depression that formed in these areas. Groundwater entered the sanitary sewers through cracks and gaps in the piping. After the lift station pumping was terminated, it took many years for normal groundwater flow conditions to be established; remnants of this depression can be seen in Parcel E on the A- Aquifer groundwater elevation contour maps through November 2015. It is likely that differential settling and earthquakes caused the cracks and gaps in this system and that the storm drain system had similar cracks and gaps.

c. Furthermore, the seagates in the storm drain system did not work well. As a result, it is possible that incoming tides moved contaminated sediment inland into lines that would not have been expected to have been contaminated. Numerous Parcel B and G forms indicate that sufficient sediment was present to sample and count in some lines. When radionuclide contamination was found above cleanup levels, the Base-wide Radiological Work Plan required that the bottom of the trench be sampled. This occurred in some trenches.

d. Finally, much of the piping was found to be in poor condition and could not be removed intact from the SD/SS trench excavations. In some cases, the Parcels B and G forms note that there was shattered or broken piping. Any sediment in the bottom of this broken piping was likely mixed with the soil in the trenches, rather than being removed.

This Conceptual Site Model is the basis for selection in the Parcels B and G the Records of Decision (RODs) for Parcels B and G of alternative R-2, the Workplan that Tetra Tech EC, Inc., was required to follow, over alternative R-1, which was "No action." For Parcels B and G, no alternative between these levels of effort was analyzed. Please revise Section 2.1 to add more detail such as information in the above record about the Conceptual Site Model.

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